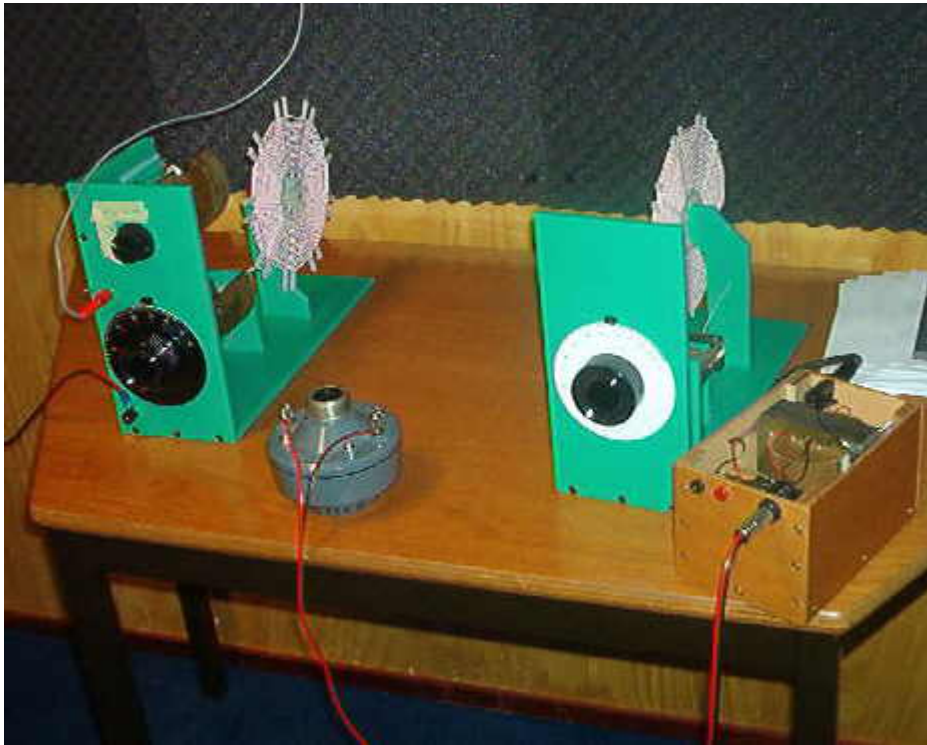


Set 7. DX receiver with two tuned circuits

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This receiver has been built in three parts, each part will be described on a separate page:

- 1- The [antenna tuner unit](#)
- 2- The [detector unit](#)
- 3- The [transformer unit](#)



In this receiver I tried to obtain the best possible selectivity and sensitivity, by using a proper circuit and good quality materials.

Before I started building this receiver, I performed many [experiments](#) in order to obtain the best possible Q factor in the tuned circuits.

This resulted in circuits with a (unloaded) Q above 1000 for the most part of the mediumwave band.

Experiments en measurements carried out with the antenna tuner unit are described [here](#).

The loudspeaker used is a [driver unit](#) from a hornloudspeaker, for more information on the sensitivity of this driver unit, see the [loudspeakertest](#).

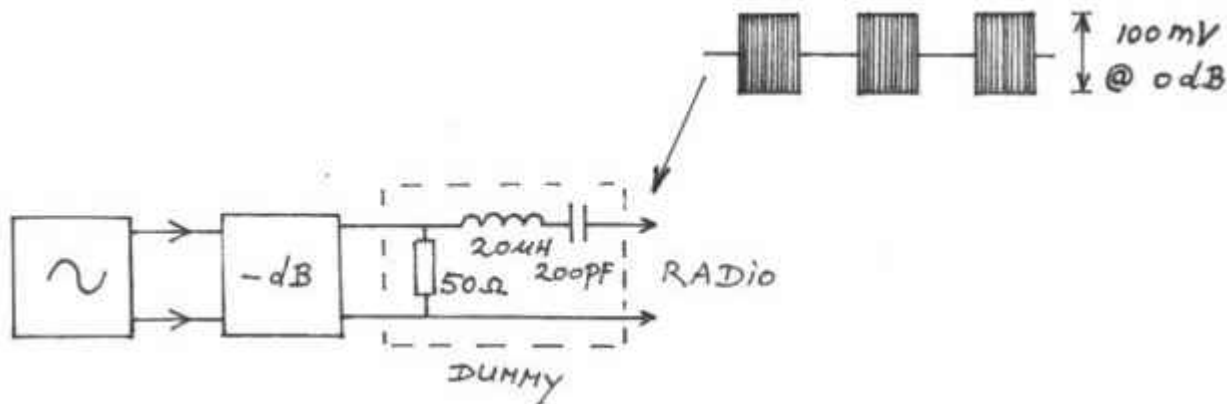
For a good performance, the coils of the antenna tuner unit and the detector unit must be placed at a distance of 42 cm.

More information and measurements on this topic, you will find [here](#).

The sensitivity of the receiver.

To measure the sensitivity of the receiver, the receiver was connected to a signal generator.

The signal generator was AM modulated with 1000 Hz, this 1000 Hz was a square wave with a modulation depth of 100 %.



Between signal generator and receiver, I connected a variable attenuator and a dummy antenna.

The output voltage of the dummy antenna was 100 mVpp with the attenuator at 0 dB.

This 100 mVpp was measured without connecting the receiver.

When we connect the receiver to the dummy antenna, the output voltage of the dummy antenna will increase, this happens because the coil and capacitor in the dummy antenna then form a part of the resonant antenna unit circuit.

Attenuator setting	Voltage out of dummy antenna (unloaded)	Audio
0 dB	100 mV pp	1600 mV pp
-10 dB	32 mV pp	540 mV pp
-20 dB	10 mV pp	120 mV pp
-30 dB	3.2 mV pp	10 mV pp
-40 dB	1.0 mV pp	< 1 mV pp
-43 dB	0.7 mV pp	sound just audible.

In the last column the amplitude of the detected audiosignal is given, the audio signal is loaded with the transformer unit with speaker.

With the attenuator at -43dB the 1000 Hz test tone was just audible.

The (unloaded) antenna voltage is then 0.7mVpp or 0.25mVeff.

For listening to a normal audio signal, the antenna signal must however be stronger.

With this receiver I took part in national and international receiving contests.

In 2005 this receiver was the 1st price winner in the "[Elmer Memorial Crystal Radio DX Contest](#)".

For loglists of the received stations, [click here](#).



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